



INDIANA DEPARTMENT OF TRANSPORTATION

STANDARDS COMMITTEE MEETING MINUTES

Driving Indiana's Economic Growth

July 23, 2007

MEMORANDUM

TO: Standards Committee

FROM: Mike Milligan, Secretary

RE: Minutes for the July 19, 2007 Standards Committee Meeting

The Standards Committee meeting was called to order by the Chairman at 9:00 a.m. on July 19, 2007 in the N755 Bay Window Conference Room. The meeting was adjourned at 12:25 p.m.

The following members were in attendance:

Mark Miller, Chairman	Dave Andrews, P.E., Engineering
Dennis Kuchler, State Constr. Engr.	Bob Cales, Contract Admin.
Larry Rust, Traffic Control	John Wright, Roadway Services
Ron Walker, Materials Mgmt.	Anne Rearick, Structural Services
Shakeel Baig, Crawfordsville Dist.	Jim Keefer, Fort Wayne Dist.

Also in attendance were the following:

Mike Milligan, Secretary	Tony DeSimone, FHWA
Paul Berebitsky, ICA	Max Azizi, FHWA
Doug Nagel, NES Traffic Safety	Tony Uremovich, Structural Serv.
Joe Novak, Constr. Management	

New Business

<u>Item No.</u>	<u>Sponsor</u>	<u>Page</u>
Item 08-2-1 108.08	Mr. Kuchler Determination and Extension of Contract Time	3
Action:	Passed as Revised	
Item 08-2-2 109.04	Mr. Kuchler Cost Reduction Incentive	4
Action:	Passed as Revised	

Item 08-2-3	Mr. Kuchler	14
109.08	Final Payment	
Action:	Withdrawn	
Item 08-2-4	Mr. Heustis	15
801.12	Temporary Pavement Marking	
Action:	Passed as Revised	
Item 08-2-5	Mr. Wright	17
Design Manual	Temporary Pavement Markings	
Action:	Passed as Revised	

cc: Committee Members (11)
 FHWA (4)
 ICA Representative (1)

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 108, BEGIN LINE 335, DELETE AND INSERT AS FOLLOWS:

The Department may order suspension of work either wholly or in part, for a period of time for certain holidays. For such orders, *if the contract suspension is not stated in the contract documents*, the contract completion time will be adjusted as follows:

- (a) If the contract completion time is on a work day basis, no work days will be charged on those days that work on the controlling operation is suspended.
- (b) If the contract completion time is on a calendar day basis, all calendar days on which work on the controlling operation is suspended will be excluded.
- (c) If the contract completion time is a fixed calendar date, the contract will ~~not~~ be extended *by the number of days that work on the controlling operation is suspended*.
- (d) If the contract contains an intermediate completion time, said time will be adjusted in accordance with the requirements of (a) or (b), above as appropriate, provided that the suspension occurs within the time period while the intermediate completion time is in effect.

Other sections containing
specific cross references:

108.03 pg 78
108.09 pg 86

Recurring Special Provisions
potentially affected:

None

Motion: Mr. Kuchler
Second: Mr. Keefer
Ayes: 10
Nays: 0

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Standard Sheets potentially affected:

None

Action: Passed as revised
Effective: September 6, 2007 Letting
X 2009 Standard Specifications Book
___ 2009 Standards Edition

Received FHWA Approval? Yes

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 109, BEGIN LINE 330, DELETE AND INSERT AS FOLLOWS:

109.04 Cost Reduction Incentive

~~The Contractor may submit a written proposal for modifying plans, specifications, or other contract provisions for the purpose of reducing construction costs. The proposal shall produce a savings without impairing essential functions, characteristics, and timing of the project, including but not limited to, service life, economy of operations, ease of maintenance, desired appearance, design or safety standards, and construction schedules.~~

~~A proposal which uses empirical design in accordance with the AASHTO LRFD Bridge Design Specifications for the concrete bridge deck will not be considered.~~

(a) Cost Reduction Incentive Proposal Requirements

~~The proposal shall be submitted with a statement identifying the proposal as Cost Reduction Incentive and shall contain, at a minimum, the following information:~~

- ~~1. A description of the difference between the planned work and the proposed change with a comparison of effects on service life, economy of operation, ease of maintenance, appearance, and safety.~~
- ~~2. Proposed changes in the design. Documents showing such changes shall be signed and bear the seal of a licensed professional engineer.~~
- ~~3. If the Contractor selects a licensed professional engineer other than the design consultant engineer who prepared the plans for the Department, the signed and sealed documents showing the proposed changes shall be submitted directly to the design consultant engineer. The design consultant engineer will review the proposed changes and provide a written recommendation to the Contractor. The design consultant engineer's recommendation shall be included in the cost reduction package submitted for the Department approval. Such recommendation will become an additional cost reduction incentive proposal requirement. Proposed changes to original plans prepared by the Department will be reviewed following submission of the cost reduction package to the Department.~~
- ~~4. The pay items and quantities affected by the change.~~
- ~~5. Complete, detailed cost estimates for performances of the work both as planned and as proposed. Such cost estimates shall be determined in the same manner as if the work were to be paid for on a force account basis in accordance with 109.05, except that lower bid unit prices will be used when applicable.~~
- ~~6. The calendar date required for acceptance and approval of the proposal in order to produce the savings indicated.~~
- ~~7. Locations and situations, including test results, in which similar measures have been successfully used.~~

- ~~8. A statement regarding the effect the proposal will have on the contract completion time.~~
- ~~9. A contract signed by the Contractor and the Contractor's redesign engineer, who prepared and sealed the plans for the cost reduction incentive proposal, shall be submitted to the Department for signature. The contract shall provide for the following:~~
 - ~~a. The Contractor's redesign engineer shall be responsible for all damage to life and property caused by its negligence and the negligence of its subcontractors, agents, or employees in connection with the services rendered in connection with the plans for the cost reduction incentive proposal. The Contractor's redesign engineer shall indemnify, defend, and hold harmless the Department, its officials and employees, from all liability due to loss, damage, injuries, or other casualties of whatsoever kind, which directly and independently of all other causes, arise out of, or result from the negligence of the Contractor's redesign engineer, its agents or employees, in connection with the services rendered in connection with the plans for the cost reduction incentive proposal.~~
 - ~~b. Neither the Department's review, approval, or acceptance of the plans for the cost reduction incentive proposal shall be construed to operate as a waiver of rights under the contract or cause of action arising out of the contract. The Contractor's redesign engineer shall be and shall remain liable to the Department for all damages caused by the negligence of the Contractor's redesign engineer.~~
 - ~~c. The rights and remedies of the Department provided in the contract are in addition to all other rights and remedies provided by law.~~
 - ~~d. The Contractor's redesign engineer shall have an affirmative duty to advise the Department of all known or obvious errors, omissions, or deficiencies in the designs, drawings, specifications, reports, or other service of the Department or consultants retained by the Department.~~
 - ~~e. The Contractor and the redesign engineer may agree to additional terms, as long as such terms do not adversely affect the Department's liability protection.~~

~~Additional information shall be provided as required to properly evaluate the proposed change. Failure to do so may result in rejection of the cost reduction incentive proposal.~~

(b) Approval of Proposal

~~The Engineer will be the sole judge as to whether a cost reduction proposal qualifies for consideration, evaluation, and approval. A proposal which requires excessive time or cost for review, evaluation, or investigation, or which is not consistent with Department design policies, may be rejected. Proposed changes in pavement design~~

~~including materials or pavement type, basic bridge design parameters including structural materials or structure type, or right of way will not be approved. Only proposals which result in the Department's portion of the net savings of \$2,500.00 or more will be considered. The Department will not be liable for failure to accept or act upon a proposal submitted in accordance with the requirements herein or for delays to the work attributable to such proposal.~~

~~Contract prices shall not be based on the anticipated approval of a Cost Reduction Incentive proposal. If the proposal is rejected, the contract shall be completed at the original contract prices. If a cost reduction incentive proposal is not approved on or before the calendar date shown on the proposal, such proposal will be deemed rejected. If a cost reduction incentive proposal is submitted which is subsequently rejected, the Contractor will be required to reimburse the Department for the costs to investigate the proposal as a condition of considering such proposal. In determining the estimated net savings, the contract unit prices bid may be disregarded if it is determined that such prices do not represent a fair measure of the value of the work to be performed or deleted.~~

~~The cost reduction incentive proposal will not be approved if equivalent options are already available within the contract, if the Department is already considering a change order to the contract which includes the proposed revisions, if certain changes in specifications or standards for general use have been approved and are subsequently used in the Contractor's proposal, or if the proposal substitutes one pay item for another pay item resulting in a decrease.~~

~~If the cost reduction incentive proposal is approved, it will be executed by means of a change order, along with the approved cost reduction incentive proposal. The change order will show the changes in the plans and specifications necessary to permit the proposal to be put into effect and the net savings will be set forth on the change order.~~

~~Upon approval, the Department will have the right to use, duplicate, and disclose in whole or in part, all data necessary for the subsequent adoption of the proposal for future projects.~~

~~The provision of this specification will apply only to contracts awarded to the lowest bidder in accordance with the Department's competitive bidding requirements.~~

~~(c) Method of Measurement~~

~~The work, as revised by the cost reduction incentive proposal, will be measured as accomplished, and in accordance with the change order.~~

~~(d) Basis of Payment~~

~~The work, as revised by the cost reduction incentive proposal, will be paid for as accomplished, and in accordance with the change order. In addition, 50% of the net savings of the cost reduction incentive proposal will be paid for separately upon completion of the revised work. The net savings will be determined by subtracting the cost of the approved change including all design and review cost from the cost of the planned work as bid.~~

Payment will be made under:

Pay Item**Pay Unit Symbol**

Cost Reduction Incentive No. _____LS

~~No additional payment will be made for cost of preparing documents showing the proposed changes by a licensed professional engineer. The Contractor shall directly pay the design consultant engineer for all costs of their review and recommendation. All cost to the Department, including costs for review of changes to plans originally prepared by the Department, will be deducted from the gross savings of the cost reduction incentive.~~

109.04 Cost Reduction Incentive, CRI

The Contractor may submit a written proposal for modifying the Contract Documents for the purpose of reducing construction costs or contract time. The proposal shall produce a savings without impairing essential functions, characteristics, and timing of the project including, but not limited to, safety, service life, economy of operations, the traveling public, ease of maintenance, desired appearance, design standards and construction schedules.

(a) CRI Initial Requirements

The Contractor shall initially submit five copies of a brief proposal to the Department to illustrate the concept or idea. At a minimum, the Contractor shall submit the following.

- 1. A statement that the proposal is submitted as a conceptual CRI.*
- 2. A brief proposal with graphics, if appropriate, to illustrate and describe the concept.*
- 3. A brief description of the existing work and the proposed changes for performing the work including a discussion of the comparative advantages and disadvantages for each and how the proposal meets the original intent of the design.*
- 4. An approximate cost estimate for performing the work under the existing contract and under the proposed change.*
- 5. An approximate cost estimate of design and engineering fees associated with the proposed change.*
- 6. A description of any effects the proposed change would have on Department costs other than those in the contract such as future construction, design, right-of-way, utilities, maintenance, and operations costs.*
- 7. The amount of time that will be needed to develop a formal CRI proposal.*

8. *A statement of the date by which the Department must execute an agreement adopting the proposal to obtain the maximum cost reduction during the remainder of the contract time, the date the work must begin in order to not delay the contract, and the reasoning for this time schedule.*
9. *An approximate estimate of the effect the proposal will have on the time for completion of the contract, including development of the formal proposal, review by the Department and implementation.*
10. *The name of the redesign professional engineer, if any.*
11. *Reference to the applicable INDOT Design Manual provisions.*
12. *A statement regarding impacted permit requirements.*
13. *Identification of any material not in the current contract that the contractor proposes to use and corresponding applicable specifications.*

The Department will notify the Contractor in writing within five business days after receipt of the proposal that the proposal has been rejected, accepted, or that a meeting needs to be arranged to discuss the proposed conceptual CRI. If the Department fails to respond within five business days, the proposal will be deemed rejected. If a meeting is requested, the Contractor shall arrange a meeting involving any professional engineer that will be used in development of the proposal; the engineer who designed the original plans or review engineer designated by the Department; contractor personnel; and INDOT personnel as determined by the Engineer. This meeting shall be held within 10 business days of receipt of the written notification, unless the Engineer approves additional time. At least two business days prior to the meeting, the Contractor shall provide a copy of its conceptual CRI to all persons invited to the meeting. Within 10 business days or a mutually agreed upon time after this meeting, INDOT will notify the Contractor in writing as to whether a complete CRI may be developed.

(b) CRI Formal Proposal Requirements

If a concept is accepted by the Department, a formal proposal shall be submitted with a statement identifying the proposal as a CRI and shall contain, at a minimum, information as follows:

1. *A description of the difference between the planned work and the proposed change with a comparison of effects on safety, service life, economy of operations, the traveling public, ease of maintenance, desired appearance, design standards, and construction schedules.*
2. *Proposed changes in the contract documents. Documents showing design changes shall be signed and bear the seal of a Professional Engineer. Design changes shall be supported by design computations as necessary for a thorough and expeditious evaluation.*
3. *The pay items, unit prices, and quantities affected by the change.*

4. *Complete, detailed cost estimates for performance of the work both as planned and as proposed.*
5. *The calendar date required for approval of the proposal in order to produce the savings indicated.*
6. *Locations and situations, including test results, in which similar measures have been successfully used.*
7. *A statement regarding the effect the proposal will have on the contract completion time.*
8. *A signed contract between the Contractor and the Contractor's redesign engineer, who prepared and sealed the plans for the CRI proposal, shall be submitted to the Department. The contract shall provide for the following:*
 - a. *The Contractor's redesign engineer shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications and other services furnished by the redesign engineer under this contract. The redesign engineer shall correct or revise any errors or omissions in its designs, drawings, specifications, and other services. The Contractor's redesign engineer shall indemnify, defend, and hold harmless the State and its agents, officials, and employees, from all claims and suits including court costs, attorney's fees, and other expenses caused by any acts, errors, or omissions of the Contractor's redesign engineer, its agents, or employees, in connection with the CRI proposal.*
 - b. *Neither the Department's review, approval, nor acceptance of the plans for the CRI shall be construed to operate as a waiver of rights under the contract or cause of action arising out of the contract. The Contractor's redesign engineer shall be and shall remain liable to the Department for all damages caused by the Contractor's redesign engineer.*
 - c. *The rights and remedies of the Department provided in the contract are in addition to all other rights and remedies provided by law.*
 - d. *No terms between the Contractor and the redesign engineer shall adversely affect the Department's liability protection.*
9. *Contractor's engineering costs to develop the proposal shall be submitted with full documentation.*

Additional information shall be provided as required to properly evaluate the proposed change. Failure to do so may result in rejection of the cost reduction incentive proposal.

(c) Approval of Formal CRI Proposal

The Engineer will be the sole judge as to whether a formal CRI proposal qualifies for consideration, evaluation, and approval. A proposal which requires excessive time or cost for review, evaluation, or investigation, or which is not consistent with Department design policies, may be rejected. A proposal may also be rejected if not submitted within the time frame specified in the Contractor's conceptual proposal, unless the Engineer approves additional time. Proposed changes in pavement design including materials or pavement type, changes in materials required to be installed by a certified installer, or changes in right-of-way will not be approved. A proposal which uses empirical design (AASHTO LRFD Bridge Design Specifications, Section 9.7.2) of the concrete bridge deck will not be considered or approved. Only proposals which result in the Department's portion of the estimated net savings being \$10,000 or more will be considered. Except as provided in 109.04(d), the Department will not be liable for failure to accept or act upon a proposal submitted in accordance with the requirements herein or for delays to the work attributable to such proposal, unless an extension of time is provided as part of the agreed CRI proposal.

Original contract bid prices shall not be based on the anticipated approval of a CRI proposal. If the proposal is rejected, the contract shall be completed at the original contract prices. If a CRI proposal is not approved on or before the calendar date submitted by the Contractor in the CRI shown on the proposal, such proposal will be deemed rejected. In determining the estimated net savings, the contract prices bid may be disregarded if it is determined that such prices do not represent a fair measure of the value of the work to be performed or deleted.

The CRI proposal will not be approved if equivalent options are already available within the contract, or if the Department is already considering a change order to the contract which includes the proposal revisions.

If the CRI proposal is approved, it will be executed by means of a change order. The change order will show the changes in the plans and specifications necessary to permit the proposal to be put into effect and the net estimated savings will be set forth on the change order.

Upon approval, the Department will have the right to use, duplicate, and disclose in whole or in part, all data necessary for the subsequent adoption of the proposal for future projects.

The provisions of this specification will apply only to a contracts awarded to the lowest bidder in accordance with the Department's competitive bidding requirements.

(d) Payment for Design of Formal Proposal, if Rejected

Except as provided elsewhere herein, if the Department rejects the formal CRI proposal, the Contractor will be reimbursed for 50% of the Contractor's reasonable design costs incurred after the Department's acceptance of the CRI conceptual proposal.

The Contractor will also be reimbursed for 50% of the Contractor's reasonable design costs of an approved CRI proposal if the Department determines that the proposal is no longer feasible because of changes in field conditions or other conditions beyond the control of the Contractor. If written approval was given to proceed with the work, procure materials, begin fabrication, and rejection occurs, the work and fabrication costs

will be reimbursed in accordance with 109.05. The Contractor will be compensated for materials ordered which are unique to the project based on the Contractor's cost minus salvage value if the Contractor is unable to return these items to the vendor. All such material may, at the option of the Department, be purchased at its actual cost. There will be no reimbursement for costs incurred prior to the acceptance of the conceptual CRI proposal. The Contractor will not be reimbursed for design costs if a formal CRI proposal is rejected because it was not submitted within the time frame specified in the Contractor's conceptual proposal or additional time approved by the Engineer, if the Contractor fails to submit additional information requested by the Department, or if the design criteria used in the proposal does not comply with the Department's design standards.

(e) Other Conditions

The Contractor shall continue to perform the work in accordance with the contract requirements until a change order incorporating the CRI proposal has been approved. However, no contract work that will be affected by a CRI proposal shall be performed until the CRI proposal has been approved or rejected.

Prior to approval, the Engineer may modify a proposal with the concurrence of the Contractor, to enhance it or make it acceptable. If any modification increases or decreases the net savings resulting from the proposal, the Contractor's 50% share will be determined upon the basis of the proposal as modified.

The Department reserves the right to include in the change order the conditions it deems appropriate for consideration, approval and implementation of the CRI proposal. Acceptance of the change order by the Contractor shall constitute acceptance of such conditions. As a condition for considering a Contractor's CRI proposal, the Department also reserves the right to require the Contractor to share in the Department's costs of investigating the proposal. If this condition is imposed, the Contractor shall indicate acceptance in writing. Such acceptance shall constitute full authority for the Department to deduct amounts for the investigation from moneys due the Contractor under the contract.

The Engineer may reject, in accordance with 105.03 and 105.11, all or any portion of work performed under an approved CRI proposal.

(f) Time Savings Proposals

The Contractor may submit a CRI proposal that reduces contract time by changing phasing of the work, the traffic control plan, or design elements.

The Department will consider proposals that result in time savings and at the same time may increase the cost of the project. The Department will be the sole judge as to whether the benefits of completing the project or a project phase before the scheduled completion date or milestone, offsets an increase to the cost of the project.

The submittals for time savings will be reviewed using the CRI proposal process. The Contractor shall provide the Department sufficient information to enable the Department to evaluate the cost benefit of the savings.

(g) Adjustments to Contract Time

For approved formal CRI proposals the Department will adjust the applicable contract time as set out in the proposal. Any adjustment will be set forth in the change order for the CRI proposal. Depending on the Contractor's proposal, the adjustment will be an increase or decrease in the appropriate completion date.

(h) Method of Measurement

The work, as revised by the formal CRI proposal, will be measured as complete and in place and in accordance with the change order.

(i) Basis of Payment

The work, as revised by the formal CRI proposal, will be paid for as complete and in place and in accordance with the change order. In addition, 50% of the total net savings of the CRI proposal will be paid for separately as follows:

- 1. An initial amount of 25% of the total estimated savings will be paid to the Contractor upon approval of the change order.*
- 2. Upon completion of all items of work included in the change order, the total net savings will be calculated and the Contractor will be paid the difference between 50% of the total net savings and the initial payment of 25% of the total estimated savings.*
- 3. A cost savings of not less than \$5,000.00 shall be guaranteed to the Department.*

The actual formal CRI proposal net savings will be checked upon completion of the contract and determination of final quantities to determine if any payment adjustment is required.

Except for the time savings component of a formal CRI proposal, the total net savings will be determined by the difference between the cost of the revised work and the cost of the related work required by the original plans and specifications. The cost of the revised work includes the administrative costs incurred by the Department to review the proposal. These costs will be agreed to in the change order. Only those work items directly affected by the plan change will be considered in making the determination of net cost savings. Subsequent plan changes affecting the modified work items but not related to the CRI proposal will be excluded from such determination. Upon completion of all work included in the CRI proposal, the final total net savings will be determined by comparing the cost of the work based on the original contract quantities with the cost of the actual CRI proposal work performed. In determining the savings, the Department reserves the right to consider other factors in addition to the contract bid prices and proposed unit prices if, in the judgment of the Department, such prices do not represent a fair measure of the value of the work to be deleted from or added to the contract.

The net savings of a CRI proposal to reduce contract time will be determined by multiplying the number of days saved by the daily liquidated damages as set forth in Section 108.08 or as otherwise provided in the contract.

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 109, CONTINUED.

Redesign engineering, in accordance with this section, is defined as 50% of the contractor's reasonable design costs incurred after the Department's acceptance of the CRI proposal. Redesign engineering will be paid when a conceptual CRI has been accepted by INDOT but the final proposal is rejected.

Payment will be made under:

Pay Item

Pay Unit Symbol

Cost Reduction Incentive Proposal No. _____ LS

Redesign Engineering, CRI Proposal No. _____ LS

Other sections containing
specific cross references:

None

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Recurring Special Provisions
potentially affected:

None

Standard Sheets potentially affected:

None

Motion: Mr. Kuchler
Second: Mr. Wright
Ayes: 9
Nays: 1

Action: Passed as revised
Effective:
January 2008 Letting
___X___ 2009 Standard Specifications Book
_____ 2009 Standards Edition

Received FHWA Approval? Yes

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 109, BEGIN LINE 675, INSERT AS FOLLOWS:

Written acceptance shall be made of the final quantities as determined by the Engineer or written notice shall be provided indicating the reason for disagreement within 30 days of receiving the Engineer's list of final quantities. If no notice of disagreement is received or the response is wholly inadequate in details for disputing the quantities, then the final payment will be based on the Engineer's list of final quantities. All other documents necessary for project finalization shall be supplied within 30 days from the date of issuance of the final acceptance letter. These documents include but not limited to:

- (a) Delinquent material certifications.*
- (b) Delinquent certified payrolls or required revised payrolls.*
- (c) Delinquent force account records.*
- (d) DBE, MBE, and WBE utilization affidavits (if applicable).*

Failure to submit these acceptably completed documents will result in liquidated damages of \$100 per day for every day that any of the required documents remain delinquent, starting 30 days after receipt of written notification from the Engineer of a document deficiency.

Other sections containing
specific cross references:

None

General Instructions to Field Employees

Update Required? Y___ N___

By - Addition or Revision

Frequency Manual

Update Required? Y___ N___

By - Addition or Revision

Recurring Special Provisions
potentially affected:

None

Standard Sheets potentially affected:

None

Motion: M
Second: M
Ayes:
Nays:

Action: Withdrawn

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 801, BEGIN LINE 547, DELETE AND INSERT AS FOLLOWS:

801.12 Temporary Pavement Marking

Temporary pavement markings shall be *new materials placed* in accordance with 808.04 and 808.05. However, *when temporary markings are to be in place for 14 calendar days or less* the dashed line pattern used on center line and lane lines may be 4 ft (1.2 m) line segments on 40 ft (12 m) centers; *and gore* ~~Gore~~ areas shall be marked by outline only and may be 5 in. (125 mm) wide lines. *No-passing zones on all undivided two-way roadways shall be identified with signs and centerline markings.* ~~However, when temporary markings are to be in place for 14 calendar days or less the dashed line pattern used on center line and lane lines may be 4 ft (1.2 m) line segments on 40 ft (12 m) centers. and gore~~ Gore areas shall be marked by outline only and may be 5 in. (125 mm) wide lines. All temporary markings shall be maintained and replaced until they are no longer applicable.

~~Temporary markings placed on the final surface course shall be temporary marking tape type 1. Where possible, when non-removable temporary markings are used on a final surface, such markings shall be placed at the same location where permanent markings will later be affixed or parallel to and within 12 in. (300 mm) of the permanent marking pattern.~~

~~Temporary markings placed for use beginning April 1 through the following November 30 shall be temporary marking tape type 1. However, non-removable markings may be placed on HMA courses other than the final course or on PCCP. Temporary markings placed for use beginning December 1 through the following March 31 shall be non-removable material. Adjustments to these dates to accommodate the actual seasonal suspension of work are subject to approval by the Engineer upon written request.~~

~~Temporary markings placed on shoulders may be non-removable material.~~

Where temporary pavement markings are to be placed on a pavement which has existing markings, the existing markings which conflict with the temporary markings shall be removed in accordance with 808.10.

When working under traffic, the temporary pavement markings shall be placed before opening the lane to traffic. This shall include, but not be limited to, the marking patterns of gore areas, outside edge line of deceleration and acceleration lanes, narrow bridge markings, lane reduction transitions, lane lines, centerlines, and transverse markings as appropriate.

~~If a pavement course is to be in place for a period greater than 14 calendar days, all temporary pavement markings shall be placed in accordance with 808.04 and stop lines shall be placed in accordance with 808.05. No-passing zones on all undivided two-way roadways shall be identified with signs and centerline markings.~~

REVISION TO 2008 STANDARD SPECIFICATIONS

SECTION 801, CONTINUED.

~~If the temporary~~ Temporary pavement markings *which* are to be in service from December 1 through the following March 31 ~~shall be painted markings.~~ ~~such~~ Such markings shall be placed in the standard pavement marking pattern and applied prior to the suspension of the work, or within seven work days after the Contractor is directed to place the markings. *Adjustments to these dates to accommodate actual seasonal suspension and continuance of work are subject to approval by the Engineer upon written request.*

Other sections containing
specific cross references:

107.12 Pg 70
108.08 Pg 83
713.05 Pg 540

General Instructions to Field Employees
Update Required? No

Frequency Manual
Update Required? No

Recurring Special Provisions

None

Standard Sheets potentially affected:

None

Motion: Mr. Kuchler
Second: Mr. Keefer
Ayes: 10
Nays: 0

Action: Passed as revised
Effective:
 X 2009 Standard Specifications Book
 2009 Standards Edition

Received FHWA Approval? yes

DESIGN MANUAL

Design Manual Change to Section 83-4.0 Temporary Pavement Markings

Other sections containing
specific cross references:

None

General Instructions to Field Employees
Update Required? NoFrequency Manual
Update Required? NoRecurring Special Provisions
potentially affected:

None

Standard Sheets potentially affected:

None

Motion: Mr. Wright
Second: Mr. Kuchler
Ayes: 10
Nays: 0Action: Passed as revised
Effective:
____ 2009 Standard Specifications Book
____ 2009 Standards Edition
___x___ 2008 Design Manual

Received FHWA Approval? Yes

83-4.0 TEMPORARY PAVEMENT MARKINGS

The INDOT *Standard Drawings* and the *MUTCD* provide the Department's criteria for the selection, application and placement of pavement marking in construction zones. The INDOT *Standard Specifications* provides additional information on *temporary* pavement marking ~~removal~~ *material usage*. Chapter Seventy-six should also be reviewed for applicable information. The following sections provide supplemental guidelines to these sources.

83-4.01 Types

The following types of pavement markings are typically used by INDOT in construction zones.

1. Temporary Paint. Quick-drying *traffic* paint is a low-cost, temporary pavement marking that may be used on construction projects. To improve reflectivity, glass beads are required. *Temporary paint is a non-removable type of temporary pavement marking*. The Department does not normally ~~allow~~ *desire* the use of temporary paint markings on final pavement surfaces. *However, temporary paint may be the most suitable choice under certain conditions, particularly when temporary markings are anticipated to be in place through the winter months.*
2. ~~Raised~~ Temporary Raised Pavement Markers. In high-volume locations, the designer may consider using raised temporary pavement markers as a supplemental device to improve delineation through the construction zone. Typical locations include lane lines, gore areas and other areas where there are changes in the alignment (e.g., lane closures, lane shifts). For lane lines, temporary raised pavement markers are placed mid-point in the gap (i.e., every 40 ft). For tapers, gore markings, etc., the raised markers should be spaced at 20 ft. Temporary raised pavement markers must be removed prior to placing of the next pavement course.
3. Temporary Pavement Marking Tape. Temporary pavement marking tape is an excellent material choice where there are changes to the traffic pattern during construction (e.g., crossover switches). Temporary tape can be easily and quickly installed and, if necessary, easily removed. ~~One disadvantage is that this tape~~ *Disadvantages of temporary tape are that it tends to move and/or breakup under heavy traffic volumes and is not suitable for usage during the winter months. Temporary pavement marking tape requires significant maintenance in comparison to temporary paint. Therefore, routine inspections are required to check serviceability.* The following describes the temporary pavement marking tapes used by the Department.
 - a. Type I. Type I tape may be used for *temporary* lane lines, centerlines and no-passing lines that are placed parallel to the normal pavement marking pattern *and for temporary transverse marking and pavement message markings*. It should also be used where pavement markings are placed at an angle to the normal pavement marking pattern (e.g., tapers for lane closures, lane shifts). Type I tape is ~~made to be a removable from the pavement~~ *type of temporary pavement marking*.

- b. Type II. Type II tape is used for pavement markings *on pavements* which are expected to be removed or covered by additional pavement courses. It may be used for edge lines, lane lines, centerlines that are parallel to the normal pavement markings. It also may be used for lane lines or centerlines on resurfacing overlay courses. *Type II tape is a non-removable type of temporary pavement marking.*
- 4. Thermoplastic or Epoxy Markings. Thermoplastic *or epoxy* markings are generally used in construction zones only if the traffic volumes are high, and the traffic pattern will be in place for a long duration (e.g., over one year). *Thermoplastic or epoxy markings are non-removable types of pavement markings.*
- 5. Buzz Strips. Buzz strips are used on high-speed, multilane facilities in advance of lane closures, alignment changes or stop conditions to warn motorists of the impending change. They are typically made with extruded material or repeated passes of pavement marking tape to reach a ¼-in. height. Figure 83-4A illustrates the typical layout for buzz strips with a lane closure. The spacing criteria are also applicable to the other conditions listed above.

83-4.02 Application

The application of *temporary* pavement markings in construction zones depends on facility type, project duration, project length and anticipated traffic volume. *The designer should consider the phasing of temporary traffic control during the construction of the project and select temporary pavement markings that are best suited to the anticipated conditions and are most economical for the project. The removal of a removable temporary pavement marking is included in the temporary pavement marking quantity. When the designer selects non-removable markings that will need to be removed as part of the planned traffic maintenance plan, a quantity for removal of the non-removable markings is required, as this is a separate pay item. When the use of non-removable temporary pavement markings is necessary on a final surface, the designer should make every effort to indicate placement of the temporary markings as near as possible to the location of the final permanent pavement markings. The INDOT Standard Specifications provide ~~the~~ additional criteria for the use of temporary pavement markings in construction zones.*